

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 2004 LG 118 E	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/EP2004/008242	International filing date (day/month/year) 23/07/2004	(Earliest) Priority Date (day/month/year) 29/07/2003
Applicant TONCELLI, Luca		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regards to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

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International Application No

PCT/EP2004/008242

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 E04C2/22 B32B27/12 B44F9/04 B29C67/24

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 E04C E04F B44F B32B B29C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 01/45921 A (TONCELLI) 28 June 2001 (2001-06-28) page 8, line 29 - page 13, line 27; claims 12-15,24-31; figure 1	1-4,7-10
A		12-16
Y	US 4 446 177 A (MUNOZ ET AL.) 1 May 1984 (1984-05-01) column 7, line 3 - line 20; claims 1,2,9,13; figure 1	1-4,7
A		6
Y	DE 39 12 647 A (MITRAS KUNSTSTOFFE GMBH) 25 October 1990 (1990-10-25) column 1, line 37 - column 3, line 60; claims 1,5,6; figures 1,2	1-4,8-10
A		5-7
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Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

1 December 2004

Date of mailing of the international search report

09/12/2004

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 786 325 A (TONCELLI) 30 July 1997 (1997-07-30) column 4, line 50 - column 6, line 21; claims 1-4; figure 1 -----	7,11

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/008242

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 0145921	A	28-06-2001	IT	TV990142 A1	21-06-2001
			CA	2361915 A1	28-06-2001
			WO	0145921 A2	28-06-2001
US 4446177	A	01-05-1984	AU	1477983 A	24-10-1983
			CA	1198256 A1	24-12-1985
			EP	0103017 A1	21-03-1984
			WO	8303223 A1	29-09-1983
DE 3912647	A	25-10-1990	DE	3912647 A1	25-10-1990
			EP	0393553 A2	24-10-1990
EP 0786325	A	30-07-1997	IT	TV960007 A1	29-07-1997
			CA	2196119 A1	30-07-1997
			DE	69709193 D1	31-01-2002
			DE	69709193 T2	18-07-2002
			EP	0786325 A1	30-07-1997
			ES	2166947 T3	01-05-2002
			IL	120087 A	20-05-2001
			TR	9700056 A1	21-08-1997
			US	5928585 A	27-07-1999

Re Item V.

1. The following documents are referred to in this communication:
D1: WO 01/45921 A (TONCELLI) 28 June 2001 (2001-06-28)
D2: US-A-4 446 177 (MUNOZ ET AL.) 1 May 1984 (1984-05-01)
D3: DE 39 12 647 A (MITRAS KUNSTSTOFFE GMBH) 25 October 1990 (1990-10-25)
D4: EP-A-0 786 325 (TONCELLI) 30 July 1997 (1997-07-30)
2. The present application does not meet the criteria of Article 33(1) PCT, because the subject matter of claim 1 does not involve an inventive step in the sense of Article 33(3)PCT.
 - 2.1 Document D1, which is considered to represent the most relevant state of the art, discloses (p. 13, l. 3-27):

a thin, stratified, reinforced slab consisting (see in particular p. 13, l. 23-2) of two outer layers and at least one resistant middle layer, wherein said outer layers and said at least one middle layer consist of the same permanently hardened mix, comprising inert materials and a binding resin and in that the mass of said middle layer is a fibrous layer where linear elements or filaments are embedded and adherent thereto, the said linear elements or filaments being inorganic;
 - 2.2 from which the subject-matter of independent claim 1 differs in that :
 - a) the linear elements or filaments having a sinuous configuration and b) alternatively being organic with equivalent properties and c) being pre-impregnated with a resin of the same kind or at least compatible with the mix.
 - 2.3 With reference to feature a): The problem to be solved with this feature may be regarded as to provide suitable linear elements or filaments for reinforcing the slab. However, the selection of the elements having a sinuous configuration is merely one of several obvious possibilities from which the skilled person would select without inventive skill to solve the problem posed.
 - 2.4 With reference to feature b): The problem to be solved with this feature may be regarded as to provide linear elements or filaments from a suitable material for

reinforcing the slab. However, the skilled person, knowing the characteristics of these elements or filaments, would without the use of inventive skill exchange the known inorganic elements or filaments from D1 with organic elements or filaments when the circumstances make this desirable.

- 2.5 With reference to feature c): The problem to be solved with this feature may be regarded as to improve the adhesion of the linear elements or filaments with the mix.

However, these features have already been employed for the same purpose in a similar slab in D2. In D2 a layer of a thermosetting resin and filler (col. 4 l. 54-56) is covered by a fibrous layer of organic fibers which are pre-impregnated with a resin of the same kind (col. 7, l. 3-7) with the fibrous layer embedded in the resin (col. 8, l. 34-38). It would therefore be obvious to the person skilled in the art, namely when the same result is to be achieved, to apply these features with corresponding effect to a slab according to document D1.

- 2.6 Since there seems to be no relation between the features of paragraphs 2.3-2.5 as they can be used independently and solve different problems, the skilled person would consider it a normal design option to combine, in accordance with the circumstances, all the features in claim 1.

3. The present application does not meet the criteria of Article 33(1) PCT, because the subject matter of claim 7 does not involve an inventive step in the sense of Article 33(3)PCT.

The document D1 discloses (see p.8, l. 29 to p. 9, l. 32) the basic method of making a reinforced slab and also describes a slab (see p.13, l. 23-27) with a middle layer of fibrous material which is poured in two subsequent steps. It is therefore obvious for the skilled person, that the claimed additional steps of first laying a layer of filaments, which is then covered by another layer of the resin mix, that is pouring the slab in two subsequent steps to incorporate the fibrous layer in the middle of the slab, will have to take place after the 4th and before the 5th station as described in D1 (see p.8, l. 29 to p.9, l.32) to achieve the desired result.

4. Dependent claims 2-6 and 8-16 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, see documents D2, D3 and D4

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/EP2004/008242

and the corresponding passages cited in the search report.